

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

Title V Proposed/Final Permit: No. V-98-009

OLIN CORPORATION, DOE RUN PLANT  
BRANDENBURG, KENTUCKY 40108-0547

April 28, 2000

COMPLETED BY: JAMES A. NEAL, KUMAR POLE, & SREENIVAS KESARAJU

**A. SOURCE DESCRIPTION:**

Olin Corporation is a synthetic organic chemical manufacturing industry (SOCMI) falling under SIC code Group 28. The Doe Run plant manufactures a variety of organic chemicals including glycols, polyols, resins, urethane systems, flexible foams, and adducts. The primary raw materials at the plant are ethylene and propylene oxides. The oxides are reacted with other compounds to produce the products previously identified. Chemical production is grouped into areas: Light Hydrocarbon (LHC), Polychemicals, Poly Solv®, Propylene Glycol, Ethylene Oxide, Polymer Polyol, ADI/TDI/Adducts, Microelectronics, Urethane Systems, and Flexible Foam.

The plant also includes several support activities such as Utilities, Pilot Plant, Wastewater Treatment, Emergency Diesel Generators, Oxygen/Nitrogen Plant, Maintenance/Vehicle Garage, Quality Control/Assurance, and Research and Development Laboratories.

**B. COMMENTS:**

*a. Type of control and efficiency:*

Each production area has its own associated air pollution control equipment, such as primary and secondary condensers, wet scrubbers, flare, or carbon adsorbers.

*b. Emission factors and their source:*

A combination of AP-42 emission factors, material balance, site testing and vendor guarantees have been used to estimate emissions in the application.

*c. Applicable Regulations:* (Note: Only specific regulations have been listed here, no generally applicable regulations are listed here)

- i. Regulation 401 KAR 61:015 applies to the particulate matter and sulfur dioxide emissions from the combustion of natural gas and secondary fuels at Boilers 1A, 2A, 3A (Emission Points 04, 05, 06).
- ii. Regulation 401 KAR 59:015 applies to the particulate matter and sulfur dioxide emissions from the combustion of natural gas and residue gas at Package Boilers A and B (emission points 07, 08).
- iii. Regulation 401 KAR 59:485 (40 CFR 60 Subpart Kb) applies to several storage vessels in each respective production area (see permit for details).
- iv. Regulation 40 CFR 63 Subpart F applies to the ethylene oxide and propylene glycol manufacturing areas.
- v. Regulation 40 CFR 63 Subpart G applies to the ethylene oxide and propylene glycol areas.

- vi. Regulation 40 CFR 63 Subpart H applies to the pipeline equipment in the ethylene oxide and propylene glycol areas.
- vii. Regulation 401 KAR 59:010 applies to all the sources of non-combustion, process particulate emissions at the Doe Run plant.
- viii. Regulation 401 KAR 59:090, applies to new ethylene plants.
- ix. Regulation 401 KAR 63:010, applies to the fugitive emissions.
- x. Regulation 401 KAR 63:015 applies to both the flares in the LHC Area.
- xi. Regulation 401 KAR 57:040 (40 CFR 61 Subpart J) applies to the pipeline equipment in the LHC Area.
- xii. Regulation 401 KAR 57:035 (40 CFR 61 Subpart V) applies by reference to the pipeline equipment in the LHC Area.

*d. Anything unusual about the:*

*(1) Emission point number and description*

Areas that currently use steam jets as control equipment will continue to monitor the vacuum, as is current practice, or until a MACT requirement changes or modifies the control equipment or monitoring methods.

*(2) Regulations that are not applicable*

Many of the NSPS facilities (distillation columns, reactors, storage vessels) are exempt from the corresponding NSPS standards. For specific reasons of exemption, please see the permit. Also refer to the permit for state and federal regulations that do not apply to any specific boiler.

*(3) Future MACT standards*

This source must comply with compliance dates for any future and current proposed MACT Standards: Polyether Polyols or Miscellaneous Organic NESHAPS (MON).

*e. If the sources has proposed any of the following, write a brief description:*

*Emission and Operating Caps description:*

- i. Early Reductions Emission Cap: NA
- ii. Synthetic Minors: Please refer to the permit for emissions units for which Olin has received synthetic minor permits

*f. Operational Flexibility:*

NA

**C. PUBLIC AND U.S. EPA REVIEW:**

On May 20, 1998, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in The Meade County Messenger. The public comment period expired 30 days from the date of publication. During this time, the only comments received were from Olin in a letter dated June 19, 1998. The division's response to these comments is included in Attachment A to this document.

Concurrently, the draft permit and all supporting materials were also made available to U.S. EPA, Region IV for review. The 45-day EPA review period also began on May 20, 1998. In a letter dated July 1, 1998, U.S. EPA provided several comments on the draft permit. The division's response to these comments is included in Attachment B to this document.

As a result of the comments received from Olin and U.S. EPA, there are several changes in the proposed permit from the draft permit. All of these changes have been specifically identified in Attachments A and B.

#### **D. CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.

## **ATTACHMENT A**

### **Response to Olin Comments**

June 19, 1998

Ms. Caroline P. Haight  
Chemical Section Supervisor  
Kentucky Division for Air Quality  
803 Schenkel Lane  
Frankfort, Kentucky 40601

Ref.: *Olin Corporation*  
*Draft Title V Operating Permit*  
*Application Log E849*

Dear Ms. Haight:

Olin submits the following comments, corrections and clarifications concerning the referenced Draft Operating Permit:

A. Permit Statement of Basis:

1. Delete reference to "Propylene Oxide" as a chemical produced at the plant. Ethylene oxide is both a product and a raw material. Propylene oxide is a raw material only.  
Response - KDAQ concurs with this comment. The appropriate changes have been made to the revised Statement of Basis.
2. Specify "ADI/TDI/Adducts" as chemicals produced since we blend ADI, TDI as well as ADI Adducts.  
Response - KDAQ concurs with this comment. The appropriate changes have been made to the revised Statement of Basis.
3. Regulation 40 CFR 63 Subpart H should be listed as an applicable regulation for ethylene oxide and propylene glycol manufacturing areas.  
Response - KDAQ concurs with this comment. The appropriate changes have been made to the revised Statement of Basis.
4. Comment "f" should not be listed as "NA," since alternate operating scenarios (For DEP 7007W) were included in the application for LHC, 2A1 Surfactants (Wayfos), and Poly Solvs® Glycol Ethers. In addition alternate boiler fuels are permitted at Utilities and batch operations producing different products are permitted at Microelectronics, Polychemicals and the Pilot Plant.  
Response - The instructions for KDAQ's Title V Application Forms (DEP 7007 Series) clearly state that a separate Form B, V, and W must be submitted for each 'alternate operating scenario'. The application does not contain any of these forms describing the scenarios listed above. KDAQ has relied upon the permit application submitted by Olin in preparation of the permit and Statement of Basis. Since the application does not describe any alternate operating scenario, none have been included in either document. Thus, Olin is incorrect in stating that ".....alternate operating scenarios ....were included in the application".

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5. The permit should specify that the Permit Shield is granted throughout the permit whenever it is specified that specific regulations are not applicable.  
Response - KDAQ is not sure what changes Olin is seeking with this comment. The permit already contains standard 'permit shield' language that is included with all Title V permit issued by this Division (see General Condition G (a) 15.).

**B. Permit Application Summary Form:**

1. Delete "NSR" New Source Review from the list of applicable requirements, since NSR is not listed as applicable in any section of the permit.  
Response - KDAQ concurs with this comment. The appropriate changes have been made to the revised Statement of Basis and Summary Form.
2. Specify that "PM" is total particulates and not PM10 or PM2.5.  
Response - "PM" has been changed to read "PM/PM10". Since Olin has not differentiated between PM and PM10 in the permit application, all PM is assumed to be PM10. Furthermore, KDAQ cannot specify that none of the PM is PM2.5 since Olin has not submitted any documentation to support this conclusion.
3. Specify that "Actual (tpy)" emissions summary is less than or equal to ( $\leq$ ) potential emissions for each listed pollutant.  
Response - KDAQ is not sure what changes Olin is seeking with this comment. U.S. EPA has interpreted the 'Actual' column of the emission summary to be the 'maximum emission potential' based on maximum operating rate and 8760 hours of operation (as appropriate). The 'Potential' column represents the 'maximum emission potential' taking into account other limitations such as processing rate limitations, synthetic minor limits, etc. In the case of this application, the 'Actual' emissions are the same as the 'Potential' emissions. Please note that 'actual' in this case does not refer to the emissions calculated based on the true production rates, hours of operation, etc. recorded at the plant each year.
4. Delete propylene oxide as a chemical produced under "Source Process Description."  
Response - KDAQ concurs with this comment. The appropriate changes have been made to the revised Summary form.
5. List operational flexibility included for Wayfos, LHC, and Poly Solv ® glycol ethers as per the above comment A.4.  
Response - See response to comment A.4 above.

**C. Propylene Glycol:**

1. Specify that emission point DF (11-8) for A-8 vacuum jet contains exhaust from batch column instead of exhaust from PG drying column. Since this batch column is not subject to HON, the reference to Group 2 process vent should be deleted (page 3). The Item 9 Compliance Schedule for storage vessels should specify testing by June 19, 1998 and Initial Notification by August 19, 1998.

Response - According to 40 CFR 63:100 (j)(4), process vents from batch operations within a

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chemical manufacturing process unit are not subject to provisions of Subparts F, G and H. Accordingly, column (11-8) Batch Column is exempt and is no longer listed in the Propylene Glycol area.

Item 9, Compliance Schedule required the inspection of closed vent system as required by 40 CFR 63.120d(6). However this item has been deleted after the Division received the Initial Notification of the inspection of closed vent system on July 14, 1998.

**D. ADI/TDI/ADI Adducts Area:**

1. Add the following storage tanks in accordance with air permit registrations filed on November 30, 1993 and February 25, 1998:

LE 5-32 25,000 gallon, Fixed Roof Storage Tank M-120

LE 5-33 25,000 gallon, Fixed Roof Storage Tank M-122 (Control Equipment :55 gallon Carbon Absorber)

(ADI Service)

LE 5-34 24,000 gallon, Fixed Roof Storage Tank M-121 (Polymeric ADI)

LE 5/35 24,000 gallon, Fixed Roof Storage Tank M-123 (Polymeric ADI) (page 12)

Response -The Title V permit application does not list storage tanks 5-34 and 5-35 in the ADI/TDI/Adducts Area, hence they have not been included. The registration which was sent on February 25, 1998 was received by the Permit Review Branch, but was not received by chemical section. However, the above changes have been made to the revised permit.

2. Modify blend tank M-103A to indicate a volume of 8,500 gallons instead of 2,600 gallons (page 12).

Response -The Title V permit application has listed the storage tank M-103 A for the ADI/TDI/Adducts Area as a 2,600 gal storage tank. However, the above change has been made to the revised permit assuming that this is the correct information.

3. Delete blend tank M-103B which was never installed (page 12).

Response -The Title V permit application has listed the storage tank M-103 B for the ADI/TDI/Adducts Area. However, the above change has been made to the revised permit assuming that this is the correct information.

4. List pipeline equipment of 6 pumps, 40 valves, 173 flanges and 18 PSV as "approximate" (page 14).

Response - General Condition G(a)(16) of the Title V permit already specifies that the pipeline equipment listed in all the production areas are an approximate count. No additional specification is necessary here.

5. Change ADI Adducts Blends limit from 6,000,000 lbs./yr. to 12,000,000 lbs./yr. as per February 25, 1998 air permit registration (page 15).

Response - As per the response to comment 1 above, the registration received on February 25, 1998 has been reviewed. The appropriate changes have been made to the revised permit.

6. It should be added that the Permit Shield is authorized for regulations identified to be not applicable.

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Response - See response to comment A.5 above.

E. Polymer Polyol Area:

1. Modify the following Reactor Processes as per the air permit registration filed October 17, 1997 (R9011):

KH/KI	(31-32)	4,450 gallons R-4 and 4,450 gallon R-3 Strip Tanks (Control and Equipment A-3 Scrubber, Ejector Vacuum Jets L-7A, L-7B, L-7D with
	(31-33)	one barometric condenser L-7C and two shell and tube condensers T-7 and T-13).
KH	(31-12)	2,675 gallon R-1 Reactor – Idle
KI	(31-13)	3,600 gallon R-2 Reactor (Control Equipment: A-3 Scrubber, Ejector Vacuum Jets L-3 with three (3) barometric condensers and one (1) shell and tube condenser T-13A (page 18).

Response -The Title V permit application nor the permit application (F348) list the stripper tanks in the DEP7007 B form as a affected unit, hence they have not been included. However, the above changes have been made to the revised permit as they were in the process flow diagram. The emission point KH cannot be described as IDLE. As per the Division's communication with Olin, the emission point KH, R-1 reactor will have the same control equipment as the R-2 reactor and be left as it is in the draft permit.

2. List pipeline equipment of 120 valves, 210 flanges, 10 open-ended valves, 3 pumps, and 4PSV as "approximate" (page 18).

Response - General Condition G(a)(16) of the Title V permit already specifies that the pipeline equipment listed in all the production areas are an approximate count. No additional specification is necessary here.

3. Specify that Permit Shield is authorized for Regulations Not Applicable (pages 18-19).

Response - See response to comment A.5 above.

4. Specify that the "key operating parameters" referenced in item 2 Compliance Demonstration Method are nitrogen gas flow, A-3 flow, and A-3 temperature (page 18).

Response -The operating parameters listed above have been included in the permit. See Item 4. Specific Monitoring Requirements in the permit for changes.

- 5 The total VOC emissions referenced in item 2 Emission Limitations shall not exceed 39.9 tons as per Construction Permit C-88-135 (page 19).

Response - The Division does not believe that a limit of 39.9 TPY is practically enforceable. However, The limit has been changed to 39 TPY from 35 TPY. See the permit for changes.

6. Item 8 State Origin Requirements should specify that the storage tank is equipped with cooling coils to hold the tank temperature at 80°F maximum annual average. Since the storage tank is already vented to a carbon canister, this modification will not affect emissions (page 20).

Response - The appropriate change has been made. See the permit for changes.



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7. Item 8.a.2.ii should be modified to identify that the line is purged with nitrogen “if the line is to remain down for an extended shutdown.” This line is not routinely purged with nitrogen after each use since this would increase the flow of non-condensibles to the scrubber and likely increase emissions. This change will not increase emissions since no leaks have ever been identified in this transfer line (page 20).

Response - The appropriate change has been made. See the permit for changes.

8. Item 8.a.3.i no longer applies since all gases are currently sent to A-3 scrubber. Item 8.a.3.ii should be changed to specify that all reaction process and vacuum phase gases from reactor R-2 and strip vessels R-3 and R-4 during IPA recovery and monomer removal shall be vented to A-3 scrubber which exhibits a control efficiency of 99.7% for acrylonitrile emissions (page 21).

Response - The appropriate change has been made. See the permit for changes.

9. The reference to monthly monitoring in Item 8.d.1 should be deleted since 40 CFR Subpart VV allows for less frequent testing based upon performance. Olin currently conducts annual monitoring in accordance with a report filed with the Kentucky Division for Air Quality on September 7, 1990 (page 21).

Response - The monthly requirement has been changed to annual requirement. See the permit for changes.

10. It should be added that the Permit Shield is authorized for regulations determined to be not applicable.

Response - See response to comment A.5 above.

F. Utilities - Boilers:

1. Hourly emission rate compliance demonstrations are not relevant for each boiler since Olin is permitted to operate at full capacity. Compliance demonstrations according to Item 2 Emission Limitation should be on a monthly or annual basis. Olin does not meter gas flows to individual boilers (page 24).

Response - Hourly emission rate compliance has been deleted from the permit. The regulations 401 KAR 61:015 and 401 KAR 59:015 to which the boilers are subject have standards for Particulate Matter, and Sulfur Dioxide. The standards are in lb/mmBTU. The emission standards have been changed to lb/mmBTU in the permit. However, the boilers are assumed to be in compliance with the above limits as long as they burn Natural Gas and Propane as primary and secondary fuels respectively.

2. The Emissions Limitation in Item 2 requiring that records be maintained of the occurrence and duration of fire-box cleaning, soot blowing, fire building, startup and shutdown should be deleted since it is not applicable for gas-fired boilers (page 25).

Response - These conditions have been removed. See the revised permit.

3. Reference to monthly hours of operation should be deleted in Item 4 Specific Monitoring Requirements for the same reasons cited above (page 25).

Response - See response to comment F.1. above.

4. The opacity observations described under Item 4 Specific Monitoring and Item 5 Specific Recordkeeping Requirements should be deleted as not applicable for natural gas fueled boilers.

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Visible emissions reporting should be required on an exceptions basis only (page 25-26).

Response - The monitoring and recordkeeping requirements for opacity observations are not for natural gas burning. These requirements are to be followed when burning waste fuels (used oils, polyols, or glycols). Regarding the Visible emissions reporting, there are no reporting requirements in the permit.

G. Polychemicals Area:

1. Emission Point FA (24-109) should specify T82A/M-98T "Batch" Stripper (page 26).

Response - The appropriate change has been made. See the permit for changes.

2. Reference to Polychemicals (Reactors) should be changed to Reactor Jets (page 26).

Response - The appropriate change has been made. See the permit for changes.

3. Emission point FL (19-114) should specify that it includes the HQEE process and "M-1" (page 28).

Response - The appropriate change has been made. See the permit for changes.

4. Emission Point FF (24-84) should also include M-90G (page 28).

Response - The appropriate change has been made. See the permit for changes.

5. Emission Point MA (24-118) and MB (24-119) should be combined onto one line since they are vented through the same jet system (page 28).

Response - Since these are separate EIS points, the Division feels separate lines are appropriate.

6. Reference to Polychemical Process Fugitive VOC Emissions at 17 pumps, 1,348 valves, 1,268 flanges and 1 PSV should be modified as "approximate" (page 28).

Response - General Condition G(a)(16) of the Title V permit already specifies that the pipeline equipment listed in all the production areas are an approximate count. No additional specification is necessary here.

7. Delete all Polychemicals Tanks except for MG (24-120) DEA Storage and EH (8-01) Propylene Oxide Storage Tank M-1J (vented to A-400 or A-11). All other tanks are listed as insignificant activities in Permit Section C (pages 28-29).

Response - The appropriate change has been made. See the permit for changes.

8. Operating Limitations in Item 1.a should specify that gases are vented to scrubber A-25, emission point FI "or the reactors respective jet system." It is necessary to add this phrase to be consistent with item 1.b. (page 30).

Response - The appropriate additional statement has been added. See the permit for changes.

9. The annual production totals for sugar charge and sugar silo of 176,500 tons/yr. are incorrect and should be deleted (page 30).

Response - Since PM<sub>10</sub> emissions are limited to less than 15TPY, tracking the Polychemicals production provides a means of demonstrating compliance. Sugar Charge of 176,500 tons/yr and Sugar Silo of 176,500 have been deleted. Particulate emissions are based on production of polychemicals.

10. The Item 2 Emissions Limitations table of criteria pollutants appears out of place (page 31).

Response - The table was out of place, and was deleted. See the permit for changes.

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11. The Item 2.a and 2.b Compliance Demonstration Methods incorrectly reference PM emissions as PM<sub>10</sub> (page 31).  
Response - Since the synthetic minor limits apply to PM<sub>10</sub> emissions only, reference to PM<sub>10</sub> emissions only in the Compliance Demonstration Method is appropriate here. Furthermore, since Olin has not differentiated between PM and PM<sub>10</sub> in the permit application, all PM is assumed to be PM<sub>10</sub>.
  12. The Specific Monitoring Requirement requested in Item 4.a.1 should be for the total unit and not “for each respective emissions unit listed above.” This reference appears unclear and may relate to the table mentioned in our comment 7.K (page 32).  
Response - The wording for this permit condition has been changed to require records of total production in the Polychemicals Area. See the permit for changes.
  13. The requirement to monitor the hours of operation for each sugar process in Item 4.a.2 is trivial and should be deleted. Olin is not a significant source of particulates (page 32).  
Response - Olin is not a significant source of particulate. Permit conditions were changed to a total unit concept, and to reflect monitoring production of polychemicals. See the permit for changes.
  14. The requirement to monitor visible emissions in Item 4.b. and 4.c. is trivial and should be deleted. It is furthermore not clear which “emission unit” is being referenced. Olin is not a significant source of particulates (page 32).  
Response - Please refer to item #13 above. The permit has been corrected to identify which emissions points to monitor for visible emissions.
  15. The Item 7 Specific Control Equipment Operating Condition the monitor gas flow and inlet gas temperature is not required by any current permit and is inconsistent with proposed Polyether Polyol MACT standards and should be deleted (page 33).  
Response - Monitoring scrubber and condenser parameters are required as a procedure to demonstrate compliance with the permit conditions specified for this process area. Specifically, U.S. EPA has specified that upper and lower control chart limits for the condensers should be listed, and hereby listed under the permit conditions. No change was made.
  16. It should be added that the Permit Shield is authorized for regulations identified to be not applicable.  
Response - See response to comment A.5 above.
- H. Microelectronics Area:
1. Emission Point HK (20-29B) should specify a “sodium bisulfate” scrubber solution instead of “sodium hydroxide” (page 36).  
Response - The appropriate change has been made. See the permit for changes.
  2. Emission Point HQ (20-50) should list Scrubber A-303I “with either sodium bisulfite or sodium hydroxide scrubber solution” (page 36).  
Response - The appropriate change has been made. See the permit for changes.
  3. Emission point NA (20-42) should identify the Formaldehyde Storage tank as “M-3” (page 37).  
Response - The appropriate change has been made. See the permit for changes.

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4. The Item 2.a Emission limitation has an apparent typographic error and should be modified to read "...HL, HM and HN to preclude **PSD**" (page 38).

Response - The appropriate change has been made. See the permit for changes.

5. The Compliance Demonstration Method in Item 2.a and 2.b is misleading and incorrect. Olin suggests that the permit be changed to list production limits and to calculate emissions based upon Kentucky Emission factors as per current monthly permit reports and previous draft Title V proposals (page 38).

Response - The permit has been changed to include Compliance Demonstration Methods that are appropriate for the emission limits listed here - hourly PM10 limits, annual VOC limits, and opacity limits. Emission factors are based on worst case conditions, and applicable requirements. See the permit for changes.

6. The Specific Monitoring Requirements in Item 4.a references "respective processes listed above when none are listed. This observation will become irrelevant if process production limits are added as per Olin's suggestion in the above comment 8.E. (page 38).

Response - The permit has been changed to include the specific materials for which production records are required.

7. The Item 4.b. visible emission monitoring requirement is insignificant and not meaningful for Microelectronics Area chemicals. Monitoring should only be required for exceptions (pages 38-39).

Response - The appropriate change has been made. See the permit for changes.

8. The Item 4.f requirement for "weekly" scrubber monitoring should be changed to once per batch. It is not appropriate to have a weekly monitoring requirement for a batch process (page 39).

Response - The appropriate change has been made. See the permit for changes.

9. It should be added that the Permit Shield is authorized for regulations identified to be not applicable.

Response - See response to comment A.5 above.

I. USE:

1. Emission Point PM (USF 15) should also list the "B-Side Specialty Area."

Response - The B-Side Specialty Area has been added. See the permit for changes.

2. It should be added that the Permit Shield is authorized for regulations identified to be not applicable.

Response - See response to comment A.5 above.

J. Flexible Foam Production Area:

1. This area is currently idle.

2. No other comments.

Response - No changes were required on the permit.

K. Flares:

1. The Operating Limitation defined in Item 1 should specify that the flare not exceed an “hourly average” of 50,000 lb/hr.

Response - The permit language has been modified to read “The rate of waste gases discharged to the 13-130 Flare shall not exceed 50,000 lbs/hr (1-hour average) (Permit C-89-067)”.

2. The Compliance Demonstration Method defined in Item 1 should specify “daily” records of waste gas flow instead of “continuous.”

Response - The waste gas discharge rate is limited to 50,000 lb/hr as a 1-hour average (see comment K.1 above). To demonstrate compliance with this requirement, Olin is required to gather sufficient data over each 1-hour period; typically this means gathering data continuously. Therefore, a daily data-collection frequency would be inappropriate for monitoring waste gas flow when the averaging period is 1-hour. While U.S. EPA guidance suggests ‘continuous’ to mean at least 4 data points per hour, KDAQ is aware that Olin has the capability to continuously monitor the waste gas flow. Therefore, this requirement has not been changed.

3. Flare “episodes” may not be clearly defined. Specific Monitoring Requirements in Item 4 and Specific Recordkeeping Requirements in Item 5 should only be required for exceptions or “when there are visible emissions” (page 44).

Response - In discussions with KDAQ, Olin indicated that while the flares are operated continuously, waste gas is only intermittently sent to the flares. Thus, the act of sending waste gas to the flares constitutes an ‘episode’ which is the way the permit currently reads. KDAQ does not believe any additional clarification is required.

Olin has misinterpreted the opacity monitoring requirements. For each ‘episode’ of waste gas flow to the flare, Olin is required to monitor the flare for visible emissions to determine compliance with the opacity standards. Records must be maintained demonstrating that such observations were made. If the permittee is not required to monitor the flares on a regular basis, it is unclear how an incident of visible emissions will ever be documented. The requirements as listed in the permit have not been changed as a result of this comment.

L. Light Hydrocarbon (LHC) Area:

1. Each LHC furnace is permitted to operate at its maximum feed rate. It is unnecessary to keep records of the monthly hours of operation as specified in Furnace Item 4.b (page 46).

Response - KDAQ has reconsidered the Compliance Demonstration Method for the LHC Area furnaces. Please see the changes in the permit. Monitoring the hours of operations is no longer a requirement.

2. It is excessive and unnecessary to require daily monitoring of natural gas furnace stacks. Exception reporting only should be specified under Furnace Item 4.d and 4.e.

Response - Based on the changes made to the Compliance Demonstration Method for the LHC Area furnaces, the monitoring requirements have also changed. See permit for changes.

3. Furnace Item 5.a should delete reference to hours of operation for the same reasons listed for comment 12.A (page 47).

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Response - Based on the changes made to the Compliance Demonstration Method for the LHC Area furnaces, the recordkeeping requirements have also changed. See permit for changes.

4. Alternate operating scenarios for LHC-Furnaces Item 8 should be included for ethane, propane and ethylene railcars (page 47).

Response - Consistent with remarks made earlier, the permit application has not listed any 'alternate operating scenarios' for the LHC Area Furnaces, hence none have been included. However, it should be pointed out that under 'Specifications for each furnace,' residue gas (consisting primarily of methane and hydrogen) is listed as a fuel in addition to natural gas. No change was made to the permit.

5. LHC Area fugitive emissions point AL should define the pump, flange, and valve count as "approximate" (page 51).

Response - General Condition G(a)(16) of the Title V permit already specifies that the pipeline equipment listed in all the production areas are an approximate count. No additional specification is necessary here.

6. It is Olin's understanding that the Kentucky Emissions Inventory TSP emission rate for emission point AD (12-13) is based upon total ethylene production and not the number of hours of decoking per month. Reference to hours of decoking in Miscellaneous Item 2 Emissions Limits should be deleted (page 55).

Response - Assuming that each decoking operation lasts approximately the same amount of time, it is appropriate to remove the requirement to record the number of hours. See permit for changes.

7. It should be added that the Permit Shield is authorized for regulations identified to be not applicable.

Response - See response to comment A.5 above.

M. 2A1 Surfactants Area:

1. This area is currently idle except for Wayfos production as an alternate operating scenario. The 2A1 business has been sold by Olin (page 57). See response 3 below.
2. Remove reference in Scrubbers Item 7, Specific Control Equipment Operating Conditions to require operation  $\pm 5$  percent of design. This is an unjustified new requirement (page 61). See response 3 below.
3. Delete reference in Group Requirements – 2A1 Surfactants that the 2A1 plant was permitted as a synthetic minor. Olin does not believe this statement to be accurate (page 62).

Response - Since the release of the Draft Permit, Olin has indicated that the 2A1 Surfactants Area has been shutdown and is no longer in operation. Olin has requested that the 2A1 Surfactants Area be removed from the Title V permit. As a result, the comments above are no longer relevant to this permit.

N. Poly Solv ® Glycol Ether Area:

1. Alternate operating scenarios were submitted with DEP 7007W forms for operation with

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*Application Log E849*

alternate alcohols including methanol, butanol, propanol, ethanol and others. This should be added to Item 8 (page 65).

Response - The instructions for KDAQ's Title V Application Forms (DEP 7007 Series) clearly state that a separate Form B, V, and W must be submitted for each 'alternate operating scenario'. The application does not contain any of these forms describing the scenarios listed above. KDAQ has relied upon the permit application submitted by Olin in preparation of the permit. No alternate operating scenarios have been included in the application for alternate alcohols.

2. The Permit Shield is authorize for regulations identified to be not applicable (page 65).  
Response - See response to comment A.5 above.

O. Ethylene Oxide:

1. Delete reference to "I" Tank for emission point ID (21-130) since it has been physically removed from service (page 66).

Response - KDAQ has relied upon the permit application and subsequent information submitted by Olin in preparing the permit. However, the change suggested above has been made to the revised permit assuming that this information is the most current.

2. There is no justification to require continuous vent stream flow indication for Process Vent Item 4.a.ii since it far exceeds HON monitoring guidelines for scrubbers. This reference should be deleted (page 67).

Response - References to the word 'continuous' have been removed from the permit. However, Olin is still required to monitor the parameters listed under Item 4.a.

3. References to total vent stream flow recordkeeping requirements for Process Vent Item 5.a. should be deleted since stack testing and engineering calculations have already established 34 gpm minimum flow to be sufficient to control emissions at maximum vent stream flow (page 68).

Response - Scrubber efficiency is a function of both liquid and gas flow rates. Simply establishing a minimum scrubbing liquid flow rate maybe insufficient as a means of demonstrating compliance in certain cases. This is especially true for the A-11 scrubber given the large fluctuations in the vent stream flow to this scrubber. This requirement has not been changed. Olin may elect to apply for a revision of the Title V permit following issuance of the proposed permit to propose alternate parametric monitoring.

4. Minor changes to the list of Ethylene Oxide Wastewater Streams was included in the Periodic Report submitted to USEPA and KYDNREP on May 13, 1998 (page 72).

Response - The list of Ethylene Oxide Wastewater streams as it appears in the permit is accurate based on the most recent additional Title V permit application information submitted by Olin. Each Title V applicant is required to update their Title V application as new information becomes available. If the list of Wastewater streams has changed, Olin must submit an update to their Title V application before any changes can be made to the permit. No changes were made to the permit as result of this comment.

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*Application Log E849*

5. References to pumps, valves and flanges for Ethylene Oxide – Pipeline Equipment should be specified as “approximate” (page 74).

Response - General Condition G(a)(16) of the Title V permit already specifies that the pipeline equipment listed in all the production areas are an approximate count. No additional specification is necessary here.

6. It should be added that the Permit Shield is authorized for regulations determined to be not applicable.

Response - See response to comment A.5 above.

P. Section C – Insignificant Activities:

1. A marked-up copy of the insignificant process tanks, storage tanks and pilot plant activities is included with this submission to correct minor errors and duplication.

Response - The appropriate change has been made. See the permit for changes.

2. It should also be noted that Maintenance Facilities/Vehicle Garage, Quality Assurance Laboratory, Research and Development Laboratory, Emergency Diesel Generators, and Oxygen/Nitrogen Plants are additional insignificant activities. All of these activities were included in our December 11, 1996 permit application.

Response - These facilities have been added to the insignificant activities list. See the permit for changes.

Q. Section F – Monitoring, Recordkeeping and Reporting Requirements:

1. It is noted that a two-year records retention schedule is allowed for certain HON records (40 CFR 63.181). The Propylene Glycol Area allows for 2 years records retention (page 12) while the Ethylene Oxide Area specifies 5 years records retention (page 77). This discrepancy should be resolved and Item 2 should be modified if applicable (page 95).

Response - All records required by a Title V permit must be maintained for a period of 5 years. This recordkeeping frequency supersedes the recordkeeping frequency in any regulation that may require records retention for a shorter period (than 5 years). In such cases, we have attempted to clarify that records must be maintained for a period of 5 years. Specifically, the records retention frequency for the Propylene Glycol Area has been changed to 5 years to resolve any discrepancies.

2. No reference is contained in this draft permit for the inclusion of Startup, Shutdown and Malfunction (S/S/M) Plans as referenced in 40 CFR 63.6(e)(3). It should be specified in Items 5 and/or 6 (or at Propylene Glycol and Ethylene Glycol Areas) that occurrences of implementation of S/S/M Plans shall be included in Periodic Reports.

Response - A second condition has been added to Section E of the permit that will address the SSM requirements referenced in 40 CFR 63.6(e)(3). This condition will only apply to those areas subject to standards under 40 CFR 63 (namely, the propylene glycol and ethylene oxide areas, which are subject to the HON Rule). For all other areas, the general SSM requirements referenced by Kentucky State Regulation 401 KAR 50:055 will continue to apply.



R. Section G – General Conditions:

The Permit Shield language in Item 15 should also identify that regulations determined to be not applicable are also subject to the Permit Shield (page 98).

Response - The permit shield applies to applicable and nonapplicable regulations at a source. However, a source may change production or processes operations, and may become subject to an applicable regulation. New or existing Federal or State regulations could change, and cause sources to become subject to regulation. No change was made the permit.

S. Section H – Alternate Operating Scenario:

Alternate operating scenarios (Form 7007W) were submitted for LHC, 2A1 Surfactants (Wayfos), and Poly Solv ® Glycol Ethers. In addition alternate boiler fuels are permitted at Utilities and batch operations producing different products are permitted at Microelectronics, Polychemicals and the Pilot Plant. Reference to these scenarios should be included in this section.

Response - The instructions for KDAQ's Title V Application Forms (DEP 7007 Series) clearly state that a separate Form B, V, and W must be submitted for each 'alternate operating scenario'. The application does not contain any of these forms describing the scenarios listed above. KDAQ has relied upon the permit application submitted by Olin in preparation of the permit and Statement of Basis. Since the application does not describe any alternate operating scenario, none have been included in either document. Thus, Olin is incorrect in stating that ".....alternate operating scenarios ....were submitted...(in the permit application)".

If Olin desires to have Alternate Operating Scenarios included in the permit, Olin may apply for a revision of the Title V permit following issuance of the proposed permit.

T. Section I – Compliance Schedule:

1. Delete reference to the Polymer Polyols Area. Acrylonitrile storage tank temperature are already monitored once per day. The stated requirement of once per shift monitoring is not included in the Polymer Polyols Area Section B description.

Response - The correction has been made. See the permit for changes.

2. Delete reference to % NaOH for the Microelectronics Area since different scrubber solutions may be utilized on different scrubbers.

Response - The correction has been made. See the permit for changes.

3. Delete reference to the 2A1 Anionic Surfactant Area since this area is idle. No compliance schedule is necessary for this area.

Response - The 2A1 Surfactants Area has been removed from the permit. Olin is no longer permitted to operate this area.

Please contact A. F. Kapteina at (502) 422-6353 should you have any questions. We additionally request that we be provided an electronic copy of this Title V Permit.

Very truly yours,  
OLIN CORPORATION  
C. K. Johnson,  
Plant Manager

CKJ/AFK/rr

## **ATTACHMENT B**

### **Response to U.S. EPA Comments**

**ELECTRONIC TRANSMISSION .....**

**Date:** July 1, 1998

**To:** Pat Haight, KDAQ  
haight@nrepc.nr.state.ky.us  
Amy Williams, EPA  
(404) 562-9128

**From:** Amy Williams, EPA  
(404) 562-9128

**Subject:** U.S. EPA's Initial Comments on Draft Title V Permit  
Olin Corporation  
Doe Run Plant, Brandenburg, Kentucky

**Significant Comments:**

1. Section B(2), ADI/TDI/ADI/ Adducts Area, Compliance Demonstration Method: Section B(2)(a) requires the submission of the procedures Olin will use to ensure compliance with the operating limitations for this unit. This procedure, or SOP, is required to be submitted within 60 days of issuance of the permit. However, because this SOP is necessary to ensure compliance with the permit limitations, it should be an enforceable part of the title V permit. Moreover, including or attaching the SOP to the Title V permit gives both the EPA and the public the opportunity to commit on the SOP.

*Response* - Standard Operating Plan (SOP) is a living document maintained at each area of operation. The procedures listed in the SOP at that affected unit will be followed on day to day basis. The Section B(2)(a) in the permit which you referenced above required that permittee include the operating limitations specified in Section B(1) in the SOP document within 60 days of the issuance of the permit, which allows the plant personnel to follow the permit conditions. However the Compliance Demonstration Method has been reworded. See the appropriate pages of the permit for corrections and changes.

The standard operating plan is included by reference only to provide the permittee with the flexibility of determining the best means of meeting the Operating Limitations specified, i.e. the permittee should be able to change the SOP at any time provided it meets the minimum requirements without having to apply for a permit revision each time.. KDAQ believes that as long as the permittee follows a documented standard operating procedure to meet the requirements listed in Condition 1, Operating Limitations, the permittee will be in compliance with these requirements. Thus, the SOP serves as a means for the permittee to demonstrate compliance with the specified Operating Limitations.

It is expected that the SOP will contain such details as the order in which valves are to be opened and closed, etc. KDAQ believes that including such minute details (either by attachment or

inclusion in the permit) is overly restrictive, unnecessary, and possibly not in the interests of minimizing emissions. Olin reviews their SOPs on a semi-annual basis and changes them (if necessary) through a Management of Change Process. If the exact details are specified in the permit, KDAQ maybe required to revise the permit for even the smallest change, a change which may minimize emissions further.

KDAQ will consider rewording Condition in Section B(2), if EPA still feels that the condition in its present form is not adequate as a Compliance Demonstration Method. Any suggestions are welcome.

2. Section B(3), Polymer Polyols Area, 2. Emission Limitations, Compliance Demonstration Method: This section requires engineering calculations and key operating parameters to be used to demonstrate compliance with the emission limitations. Because these requirements are necessary to ensure compliance with the permit limitations, they should be an enforceable part of the Title V permit. We recommend that the engineering calculations and key operating parameters be identified and defined.

This section also requires Olin to use the above information to calculate the annual emission rate for VOCs (12 month rolling average). However, the permit does not require Olin to record or report this emission rate. Because these limits were established to avoid PSD, recordkeeping and reporting requirements should be established in the permit.

*Response* - KDAQ concurs with this comment. The Key Operating Parameters have been included in the revised permit and also the Compliance Demonstration Method has been reworded. The VOC emissions from the Polymer Polyol area are best correlated with the Usage rates of Styrene, Acrylonitrile and Iso Propyl Alcohol and the production rate, which are restricted. See the Operating Limitations. The Key Operating Parameters also include Flow Rate of the scrubbing liquid and temperature of the scrubbing liquid at A-3 scrubber, which are restricted. See Specific Control Equipment Operating Conditions. KDAQ believes the above limitations will effectively limit the VOC potential to less than 40 tpy.

The Recordkeeping and Reporting Requirements have been added to the permit. See appropriate pages of the permit for corrections/changes.

3. Section B(5), Polychemicals Area, Operating Parameters for Condensers: Condition 7, Specific Control Equipment Conditions, requires Olin to operate the condensers within statistical control limits. We recommend the actual control parameters/operational limits be established in the permit to make it enforceable. This is particularly important since this is the method by which the source will ensure compliance.

*Response* - Item **7. Specific Control Equipment Operating Conditions** specifies the control chart limits for batch vacuum levels at each reactor vent or stripper column steam jet eductor. Each facility shall be maintained, and the vacuum shall be monitored/collected on a continual basis for all condensers in the Polychemicals Production Area. Facilities are considered to be operating in compliance provided each reactor jet condenser system is within the established upper and lower statistical control limits.

4. PSD Limit: Condition 2 of Section B(6), Microelectronics Area, Emission Limitations, limits VOC emissions to 40 tpy to avoid PSD. The permit does not contain process restrictions to limit PTE. Because this source has a PTE of greater than 40 tpy, the permit should establish process restrictions to ensure compliance with the synthetic minor limit.

*Response* - Process restrictions or processing limits have been added, under **1. Operating Limitations**. The condition specifies an annual product limit for cyclized and fractionated rubber.

5. PSD Limit: Condition 5 of Section B(11) Group Requirements - 2A1 Surfactants (Specific Recordkeeping Requirements) specifies requirements to ensure that the sulfur dioxide limit of 39 tpy (12-month rolling total) to preclude PSD applicability is met. Condition 2(d) requires the source to maintain monthly records of total sulfur dioxide emissions. We recommend that operational limits be specified in the permit, such as limits on the total batches and amount of sulfonated surfactant produced, to ensure that the sulfur dioxide emissions do not exceed 39 tpy and PSD is not triggered.

*Response* - The 2A1 Surfactants Area has been discontinued and has been removed from the permit. As a result, these comments are no longer relevant to this permit.

6. Section B(11) 2A1 Surfactant-SO<sub>2</sub>/SO<sub>3</sub> Unloading and Storage: Condition 1, Operating Limitations and Compliance Demonstration Method, refers to an SOP. This condition should specify what the SOP will contain, or the SOP should be attached to the permit.

*Response* - The 2A1 Surfactants Area has been discontinued and has been removed from the permit. As a result, these comments are no longer relevant to this permit.

7. Section B(13), Ethylene Oxide - Wastewater Streams, (2) Emission Limitations: This section appears to overlook several citations. This section could be rewritten to read, "Therefore, pursuant to 40 CFR 63.132(b)(4), the permittee shall comply with the recordkeeping and reporting requirements of 40 CFR 63.146 and 63.147, and pursuant to 40 CFR 63.132(b)(2)(I) shall make Group 1 or Group 2 determination."

*Response* - KDAQ concurs with this comment. See appropriate pages of the permit for corrections/changes.

### **General Comments:**

1. National Emission Standards for Organic Hazardous Air Pollutants: It appears that the permit was not written using the amended regulations for 40 CFR Subparts F, G, and H. The HON regulations promulgated on April 22, 1994, have been amended several times. The most recent amendments for Subparts F, G, and H were on January 17, 1997. The following comments pertain to sections of the permit that refer to incorrect regulatory citations:

- a. Section B(1), Propylene Glycol - Wastewater Streams, (2) Emission Limitations:

40 CFR 63.122(f)(2) does not exist; the correct regulation should be referenced here.

*Response* - KDAQ concurs with this comment. See appropriate pages of the permit for corrections/changes.

- b. Section B(13), Ethylene Oxide - Transfer Operations: The regulation cited in this section [40 CFR 63.100(f)(8)] is not applicable. The regulatory citation should be 40 CFR 63.100(f)(10).

*Response* - KDAQ concurs with this comment. See appropriate pages of the permit for corrections/changes.

- c. Section B(1), Propylene Glycol - Process Vents, (5)(a) Specific Recordkeeping Requirements: This section of the permit cites 40 CFR 63.118(b). The federal citation should be 40 CFR 63.117(b).

*Response* - KDAQ concurs with this comment. See appropriate pages of the permit for corrections/changes

2. Notifications: The permit acknowledges that the propylene glycols section and the ethylene oxide section are subject to the HON. The inclusion of only these two processes is consistent with most of the permittee's notifications under the HON including letters to EPA dated April 19 & 22, 1996. However, the initial notification stated that the permittee also had a CMPU for the production of either diethylene glycol monomethyl ether, ethylene glycol monomethyl ether, or propylene glycol monomethyl ether. Since all of these ethers are table 1 SOCM chemicals, it is unclear why this CMPU is not subject to the HON in the permit. Presumably, this is the Polysolv/Glycol Ethers Area.

*Response* - KDAQ raised this very question with Olin in a letter from KDAQ to Olin dated August 6, 1997. In their response to this question, Olin provided actual production information for the PolySolv/Glycol Ethers Area documenting that less than 30% of the production consists of HON regulated glycol ethers. Based on this information, Olin has determined that in accordance with 40 CFR 63.100 (d), the 'primary product' of the PolySolv/Glycol Ethers Area is not a HON listed chemical.

Thus, following submittal of their April 19 & 22 Notifications, Olin re-evaluated HON applicability to the PolySolv/Glycol Ethers Area and determined that the Area does not meet the criteria for CPMU listed in 40 CFR 63.100 (b)(1). The production rate information provided by Olin can be found in their supplement to the Title V application dated August 22, 1997. This can be found in the section of the application marked 'Additional Information'. If U.S. EPA is unable to locate this information, KDAQ will be happy to fax a copy of this information.

3. Table of Contents: The page numbers contained in the Section B Table of Contents do not match the pages in Section B.

*Response* - KDAQ concurs with this comment. The Table of Contents has been updated to reflect the proper sequencing of each section.

4. Section B(1), Propylene Glycol - Process Vents, Emission Limits: This section identifies only the formula for determining the emission limit. Because the values for calculating the limit are known, we recommend that the actual emission limit (not the formula) be identified.

*Response* - KDAQ concurs with this comment. See appropriate pages of the permit for corrections/changes. The actual TRE values have been identified.

5. Section B(5), Polychemicals Area, Compliance Demonstration Method: In this section, it is unclear if the sugar charge is multiplied by the process rate, or if the sugar charge is the process rate. Additionally, the relationship of the numbers without units to the emission rate is not clear. This calculation needs further definition and explanation.

*Response* - The sugar charge processing rate has been clarified, and numbers associated with units.

6. Section B(5), Polychemicals Area: Condition 7, Specific Control Equipment Conditions, requires Olin to record scrubber parameters once per shift (A-25 Scrubber Parameters). However, because the scrubber parameters are being continuously monitored, we recommend that the source continually record the parameters as well.

*Response* - The permit condition has been changed to require Olin to record the A-25 Scrubber operating parameters continually. See the **A-25 Scrubber Parameters** table in the permit for changes.

7. Section B(6), Microelectronics Area: Requirement “d” is missing from Condition 4, Specific Monitoring Requirements.

*Response* - The appropriate change has been made. See the permit for changes.

8. Section B(6), Microelectronics Area: Condition 6, Alternative Operating Scenarios, should define what is considered an “equivalent scrubber control systems.”

*Response* - Olin has requested that the permit condition under **8. Alternate Operating Scenarios** be changed. The appropriate change has been made. See the permit for changes.

9. Section B(13), Ethylene Oxide, - Pipeline Equipment: Condition 6, Specific Reporting Requirements, does not contain the requirements for acknowledgments of receipt of the initial notification and compliance certification. This is inconsistent with Paragraph 6 of Section 1 (Pipeline Equipment).

*Response* - KDAQ concurs with this comment. The acknowledgments of receipt of the initial notification and compliance certification for the pipeline equipment in the Ethylene Oxide Area have been added to the permit to maintain consistency with that in the Propylene Glycol Area.

10. Referenced Due Dates: Some of the requirements in the Compliance Schedule section of Section B reference due dates which have already passed. For example, April and May 1998 due dates are referenced in the Compliance Schedule section for propylene glycol storage vessels (B.1.9). These dates should be changed.

*Response* - KDAQ concurs with this comment. Olin Chemicals has submitted the initial notification on July 14, 1998 and the Compliance Schedule has been removed. See appropriate pages of the permit for corrections/changes.